REVISED 10/08

LSUE COURSE SYLLABUS

I.	**Chemistry 1201**	**Instructor: Chemistry Faculty**

II. Course description from the current LSUE catalog:

Basic Chemistry. Lec. 3; Cr. 3.
Modern chemical theories and principles; quantitative approach and problem solving, descriptive chemistry of selected elements and compounds. Credit will not be given for both this course and Chemistry 1001. For science/engineering curricula.
Prerequisite: Eligibility to schedule Mathematics 1021.

III. Textbook(s) and other required materials:

Chemistry, 9th edition by Raymond Chang, McGraw Hill Publishing. Workbooks to accompany the text are optional. Students are expected to use calculators. A copy of the periodic table is suggested to assist in class and tests.

IV. Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):

Three one-hour examinations and a comprehensive two-hour final examination are given. The ten-point scale is used. The details of grading will be discussed during the first day of instruction by the instructor of the course.

V. Policies pertaining to attendance, late work, make-up work, etc.:

Students should attend all classes. Check with instructor to make up for missed classes and tests.

VI. Course objectives:

To provide knowledge of the composition of atoms and molecules. To furnish knowledge of the mole concept, balancing equations and weight relationships. To use gas laws to exemplify the basic relationships of chemistry. To acquaint the first year student with basic principles of chemistry and provide an in depth foundation for subsequent courses.

VII. Major instructional objectives:

1. To provide knowledge of the composition of atoms and molecules.
   a. Distinguish between major sub-atomic particles
   b. Understand role of sub-atomic particles in nuclear and chemical reactions as well as in radioactive decay.
   c. Using atomic theory, formulate electronic structure and arrangements and atomic relationship to periodic function and periodic table.
   d. Proposed ionic structure and covalent reactions based on electronic structure.
   e. Identify major bonds and their reactivity based on molecular orbital theory.
   f. Distinguish between polar and non-polar molecules based on position of the atoms in the periodic table and their electronegativity differences.

2. To furnish knowledge of the mole concept, balancing equations and weight relationships.
   a. Using electronic configurations and the position on the periodic table, formulate stoichiometric principles to balance chemical equations.
   b. Distinguish between atomic masses and gram molecular weights.
   c. Relate mole concepts to the stoichiometry and weight relationships in chemical reactions.
   d. Relate position on the periodic table to arrive at values of oxidation numbers.
   e. Formulate empirical and molecular formulae based on oxidation numbers.
   f. Using molecular formulae, understand chemical nomenclature.

3. To use gas laws to exemplify basic relationships of chemistry.
   a. Understand basic properties of gaseous atoms and molecules from kinetic molecular theory.
   b. Distinguish between variables of pressure, volume, temperature and amount in moles and their interrelationship.
   c. Using basic gas laws by Boyle, Gay-Lussac, Charles and Avogadro, calculate remaining values of variables.
   d. Relate other gas laws to the ideal gas law.
   e. Distinguish between the various states of matter and energies needed to convert to another state.

VIII. Brief summary of course content by major units of instruction:

1. Properties of Matter
   Matter
   Changes
   Units, terms

Energy
- Changes
- Units, terms
- Heat changes

Laws
- Energy & mass
- Definite composition
- Multiple proportions

2. Properties of Atom
   - Electron, Neutron, Proton
   - Rutherford's Experiment – Nucleus
   - Mass No., Atomic No., Avogadro's No.
   - Atomic weight, isotopes, Ionization Energy

3. Nucleus – Radioactivity
   - Types, Equations, Energy

4. Structure of the Atom
   Bohr's Picture – Energy levels, light, equation, quantum theory, Wave Theory – Quantum Numbers, Properties of Atoms – Chemical and Physical Electronic Structure, Periodic Table.

5. Compounds
   - Ionic bonds – formation of ions – Compounds
   - Covalent bonds – Molecules – Lewis Structure
   - Polar Covalent Bonds, Oxidation Numbers
   - Naming

6. Molecular Orbital Theory
   - Signa-Pi bonding, Hybridization, Molecular Orbital Construction

7. Weight Relationships – Stoichiometry
   - Writing Formulas – Chemical Equations – Balancing
   - Writing Formulas – Chemical Equations – Balancing
   - Atomic – Molecular – Weights – The Mole
   - Weight – Molar Relationships – Problems
   - Molecular and Empirical formula

8. Gases
   - Kinetic Theory description
   - Variables in Gases, P, V, T
   - Gas Laws, Boyles – Charles, Gay-Lussac – Avogadro
   - Changes in State – Energy Requirements

IX. Methods of instruction:

The course is basically a lecture/discussion format. Audiovisual materials include transparencies to accompany the textbook.

X. Brief overview of special instructions:

None.

XI. Bibliography of supplemental references and/or source materials:

None.

ADS Americans with Disabilities Act) Statement

Any student who is a "qualified individual with a disability" as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD CODE OF STUDENT CONDUCT

LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the "Current Students" link from the homepage, and then click on "Student Handbook."